UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,865	10/14/2003	Rida M. Hamza	H0005041 (256.149US1)	4784

128 7590 09/05/2008
HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
ROBERTS, JESSICA M	
ART UNIT	**PAPER NUMBER**
2621	

MAIL DATE	DELIVERY MODE
09/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/684,865	Applicant(s) HAMZA ET AL.	
	Examiner JESSICA ROBERTS	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08/12/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/12/2008 has been entered.

Response to Arguments

2. Applicant's arguments filed 08/12/2008 have been fully considered but they are not persuasive.

3. As to applicants argument regarding the Flickner references relates to a real time segment of video, not to a pre-selection of a first color distribution.

4. The examiner respectfully disagrees. Flickner discloses in a preferred implementation, the system segments each recorded camera frame into foreground and background (including shadow) pixel regions using a statistical background model based on RGB (red, green, blue) color constancy and brightness, [0007]. Further, disclosed is in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of he cameras view over time [0025].

Therefore, it is clear to the examiner that Flickner discloses to a pre-selection of a first color distribution in the first stage to distinguish moving pixels from stationary pixels by monitoring the color which reads upon the claimed limitation.

Claim Rejections - 35 USC § 112

5. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1, is indefinite because it is unclear what is to be considered "contextual information". As best understood by the examiner, "contextual information” is data relating to the frame, such as motion or the lack of motion.

7. Claims 2-15 and 28-30 are also rejected as being indefinite, for being dependent upon claim 1.

8. Claim 16, is indefinite because it is unclear what is to be considered "contextual information". As best understood by the examiner, "contextual information" is data relating to the frame, such as motion or the lack of motion.

9. Claims 17-26 are also rejected as being indefinite, for being dependent upon claim 16.

10. Claim 27 is indefinite because it is unclear what is to be considered “contextual information”. As best understood by the examiner, “contextual information” is data relating to the frame, such as motion or the lack of motion.

Claim Objections

11. The following is a quotation of 37 CFR 1.75(d) (1): The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

12. Claims 1-30 are objected to under 37 CFR 1.75 (d) (1), as failing to conform to the invention as set forth in the remainder of the specification.

13. Claim 1 is objected to because there is no support for "contextual information".

14. Claims 2-15 and 28-30 are objected for being dependent upon claim 1.

15. Claim 16 is objected to because there is no support for "contextual information".

16. Claim 15-26 are objected for being dependent upon claim 16.

17. Claim 27 is objected to because there is no support for "contextual information".

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. Claims 1-26, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavlidis et al., Urban Surveillance Systems 2001 in view of Monroe et al., US-2003/0025599 in view of Flickner et al., US-2003/0107649A1 and further in view of Gu et al., US-5, 874, 988.

Regarding **claim 1**, Pavlidis discloses a method of detecting motion in an area the method comprising: receiving frames of the area (Pavlidis, DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixels as noise, *C. Multiple Hypotheses Predictive Tracking* pg. 1448 and Section V). Pavlidis is silent in regards to using a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected; wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first contextual information that does not represent any motion of interest; and wherein the high speed motion detection algorithm is configured such that the first color pixel distribution is pre-selected; wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution associated with the first contextual information and another portion of the frame with a second pixel color distribution associated with a second contextual information. However, Monroe discloses a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not

detected (only changes in the data need be transmitted; see page 4, paragraph [0032], [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a wherein the high speed motion detection algorithm represents the frames, wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution that does not represent any motion of interest; wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution.

However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first contextual information that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to

predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in

different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 2**, Pavlidis (modified by Flickner and Gu) is silent in regards to the high-speed detection algorithm operates in a compressed image domain. However, Monroe teaches the high-speed detection algorithm operates in a compressed image domain (Monroe, [compressed digital images; page 4, paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified with Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 3**, Pavlidis (modified by Flickner and Gu) is silent in regards to the high speed detection algorithm operates in an uncompressed image domain.

However, Monroe teaches the high speed detection algorithm operates in an uncompressed image domain (Monroe, optionally compressed; page 16, paragraph [0212]) image domain.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 4**, Pavlidis (modified by Monroe, Flickner and Gu) as a whole further teach the high performance detection algorithm operates in an image pixel domain (Pavlidis, motion segmentation through a multi-normal representation at the pixel level, pg 1482, first column).

Regarding **claim 5**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach the high speed motion detection algorithm represents portions of images in grey scale pixels (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 6**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach the image are represented in grey scale when such portions are not high in color content (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 7**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach the selected portions of the images are low in color content (Pavlidis

discloses the use of a dual channel camera system that uses a medium resolution color camera during the day, and a high resolution grey scale camera during the night, V. *Optical and System Design,* page 1482. Monroe discloses the ability to select areas of a selected scene for monitoring activity level paragraph [0044]).

Regarding **claim 8**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach the portions are based on an initial set up (Pavlidis. VI. Object Segmentation and Tracking, *Initialization*, pg. 1484, Monroe discloses defaulting and programmable modes; page 4, paragraph [0028]).

Regarding **claim 9**, Pavlidis (modified by Flickner and Gu) is silent in regards to wherein the selected portions are determined based on a real time assessment of dynamic change in the area. However, Monroe teaches wherein the selected portions are determined based on a real time assessment of dynamic change in the area (Monroe, [0045]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 10**, Pavlidis (modified by Flickner and Gu) is silent in regards to the threshold is predetermined. However, Monroe teaches wherein the threshold is predetermined (defined threshold would be indicative of motion; page 8 paragraph [0115]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 11**, Pavlidis (modified by Flickner and Gu) is silent in regards to the area is a predetermined area. However, Monroe discloses the area is a predetermined area (remote; page 8 paragraph [0108]) area.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 12**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach the frames comprise pixels, and where such pixels are group in blocks of pixel, each block being represented as an average or median in the color domain (Pavlidis, pg 1485, first column).

Regarding **claim 13**, Pavlidis (modified by Flickner and Gu) is silent in regards to the blocks of pixels are of different sizes. However, Monroe teaches wherein the blocks of pixels are of different sizes (decimation various numbers of pixels will effectively change the sizes of pixel blocks; page 9 paragraph [0118]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 14**, Pavlidis (modified by Flickner and Gu) is silent in regards to the area requiring higher resolution to detect motion are represented by blocks of smaller number of pixels. However, Monroe teaches wherein portions of the area requiring resolution to detect motion are represented by blocks of smaller number of pixels (page 9, paragraph [0116] and fig. 2:21-24) Monroe discloses using the histogram to determine the degree of change, where pixels are grouped according the value of change.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 15**, Pavlidis (modified by Flickner and Gu) is silent in regards to the number of pixels in the blocks is varied based on depth of field. However, Monroe teaches wherein the number of pixels in the block is varied based on depth of field (the degree of motion; page 9, paragraph [0121] and see fig. 3: 34).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 16**, Pavlidis teach a method of detecting motion in an area (DETER, a prototype urban surveillance system, *Introduction*, pg 1478), the method comprising: receiving frames of the area (DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected; using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixel as noise VI. *C. Multiple Hypothesis Predictive Tracking,* pg. 1488), wherein the frames comprise pixel (motion segmentation though a multi-normal representation at the pixel level, pg 1482), and where such pixels are grouped in blocks of pixels, each block being represented as a single average pixel (Jeffery's divergence measures pg 1485-1487); and initializing a model of the area comprising multiple weighted distributions for each block of pixels (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485-1487). Pavlidis is silent in regards to using a high-speed motion detection algorithm to remove frames in which a threshold amount of motion is not detected; wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first

contextual information that does not represent any motion of interest; and wherein the high speed motion detection algorithm is configured such that the first color pixel distribution is pre-selected; wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution associated with the first contextual information; and wherein the high performance motion detection algorithm operates on the frames, wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution associated with the first contextual information and another portion of the frame with a second pixel color distribution associated with a second contextual information; and initializing a model of the area comprising multiple weighted distributions for each block of pixels.

However, Monroe discloses using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected (see page 4, paragraph [0032], [0033]). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution that does not represent any motion of interest; wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and wherein wherein the high performance motion detection algorithm operates on the frames, wherein the plurality of the frames comprises a selected portion of a frame with

the first pixel color distribution associated with the first contextual information and another portion of the frame with a second pixel color distribution associated with a second contextual information; and initializing a model of the area comprising multiple weighted distributions for each block of pixels.

However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first contextual information that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); wherein the high performance motion detection algorithm operates on the frames, wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution associated with the first contextual information and another portion of the frame with a second pixel color distribution associated with a second contextual information (Flickner teaches in the first stage, a temporal median

filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 17**, Pavlidis (modified by Flickner and Gu) is silent in regards to the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied. However, Monroe discloses wherein the frames comprise blocks of pixels, and wherein a number of weighted distributions per block are varied (Monroe, continuous variable; page 9, paragraph [0121]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 18**, Pavlidis (modified by Monroe, Flickner, and Gu), further teaches the number of weighted distributions varies (Monroe, continuous variable; page 9, paragraph [0121]) between 1 and 5 (Pavlidis, see VI. Object Segmentation and Tracking, page 1485).

Regarding **claim 19**, the Pavlidis (modified by Monroe, Flickner, and Gu), as a whole further teach the number of weighted distributions is varied based on dynamics of motions or expectations (Pavlidis, VI. Object Segmentation and Tracking, *Model Update When a Match is Found,* pg. 1486-1487).

Regarding **claim 20**, Pavlidis (modified by Monroe, Flickner, and Gu), as a whole further teach the model is based on N successive frames and the weight is based on a count (Pavlidis, VI. Object segmentation and Tracking, *A. Initialization page* 1484-1485)

Regarding **claim 21**, see analysis and rejection of claim 16. Furthermore, a predefined number of weighted distributions are selected for each block of pixels, and wherein the weights are normalized as claimed are discussed in the combined teaching of Monroe and Pavlidis (mixture of Normals; Pavlidis, *III.* Relevant Technical Work, page 1481 and VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding **claim 22**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach if pixels in a new frame match the model, the model weights and distributions are updated (Pavlidis, VI. Object Segmentation and Tracking: *A. Initializing*, page 1485).

Regarding **claim 23**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach a (modified Jeffery's measure) is used to determine a match or non-match in the distributions (Pavlidis; VI. Object Segmentation and Tracking, *B Segmentation of Moving Objects*: The Matching Operation, page 1486).

Regarding **claim 24**, Pavlidis (modified by Monroe, Flickner, and Gu) as a whole further teach a predetermined number of frames have pixels or blocks that do not match

the model, the lowest weighted distributions of the pixels or blocks of a background are removed from the model and replaced by ones derived from a foreground distribution once a derived number of sequences is reached within the last N successive frames (Pavlidis, VI. Object Segmentation and Tracking *B. Segmentation of Moving Objects:* Model Update When a Match is Not Found; page 1487).

Regarding **claim 25**, Pavlidis (modified by Flickner and Gu) is silent in regards to the high speed motion detection algorithm operates in a compressed image domain.

However, Monroe teaches wherein the high speed motion detection algorithm operates in a compressed image domain (see Monroe, page 4, paragraph [0029]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 26**, Pavlidis (modified by Flickner and Gu) is silent in regards to the high speed motion detection algorithm operates in an uncompressed image domain.

However, Monroe teaches wherein the high speed motion detection algorithm operates in an uncompressed image domain (in Monroe, the calculation of the difference between two images is tabulated uncompressed or compressed, see page 4, paragraph [0032], also page 16, paragraph 0212, optionally compressed).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with

the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 28,** Pavlidis (modified by Monroe and Flickner) are silent in regards to wherein the first color pixel distribution is pre- selected by an operator.

However, Gu teaches the first color pixel distribution is pre-selected by an operator (fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 29,** Pavlidis (modified by Monroe) is silent in regard to The method of claim 1, wherein the first color pixel distribution is pre- selected by an automated image contextual classifier.

However, Flickner teaches to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary

represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to pre-select the color distributions.

However Gu teaches to pre-select the color distributions (column 4 line 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 30,** Pavlidis (modified by Monroe and Gu) is silent in regards to The method of claim 1, comprising analyzing the frame as a function of a resolution of a region of interest in the frame.

However, Flickner teaches analyzing the frame as a function of a resolution of a region of interest in the frame ([0025])

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe and Gu) for allowing for more efficient tracking of persons and activities [0004].

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al., US-2003/0025599 in view of Pavlidis et al.: Urban Surveillance Systems, 2001 in

view of Flickner et al., US-2003/0107649 A1 and in further view of Gu et al., US-5, 874,988.

Regarding **claim 27,** Monroe teaches A system for detecting motion in a monitored area, the system comprising: means for receiving video images of the monitored area; a fast video motion segmentation (VMS) module that rejects still images that do not portray any motion (motion of the fan is not detected as motion, and does not cause unnecessary transmission and storage of still image data, page 9 [0121, and; a robust VMS module that detects motion of an object in the monitored area (remote area; page 3 [0026]); and a resource management controller that initializes , controls, and adapts the fast and robust VMS modules; wherein the robust VMS module (adaptive; page 9 [0123 and page 10 [0124. Monroe discloses that the system is adaptive, thus necessitates a controller to initialize control, and adapt the system for motion detection). Monroe is silent in regards to wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first contextual information that does not represent any motion of interest, and wherein the high speed motion detection algorithm is configured such that the first color pixel distribution is pre-selected ;and wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution associated with the first contextual information and another portion of the frame with a second pixel color distribution associated with a second contextual information.

However, However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first

contextual information that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D

Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Monroe for allowing for more efficient tracking of persons and activities [0004].

Monroe (modified by Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Monroe (modified by Flickner) for providing efficient signal processing of color images.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621
/Jessica Roberts/
Examiner, Art Unit 2621